

INDIA ETHANOL MARKET

Market Size, Share, Trends and Forecast by Type, Raw Material, Purity, Application and Region, 2026-2034

IMARC Group | Last Updated: 24 September 2026

Executive Summary

The India ethanol market increased from USD 3.43 billion in 2025 to USD 4.14 billion in 2026 and is projected to reach USD 11.78 billion by 2034, exhibiting a CAGR of 13.95% during 2026-2034. IMARC attributes growth to the Ethanol Blending Programme (EBP), the E20 fuel mandate, the National Biofuel Policy, rising sugar surplus, 2G bio-ethanol scale-up and flex-fuel vehicle commercialization.

Indicator	Details
2025 Market Size	USD 3.43 Billion
2026 Market Size	USD 4.14 Billion
2034 Forecast	USD 11.78 Billion
Forecast CAGR	13.95% (2026-2034)
Leading Type	Bio Ethanol - 87.6% share (2025)
Leading Purity	Denatured - 81.3% share (2025)
Largest Region	North India - 31.5% share (2025)
Blending Achieved	13.6% nationwide (2024)

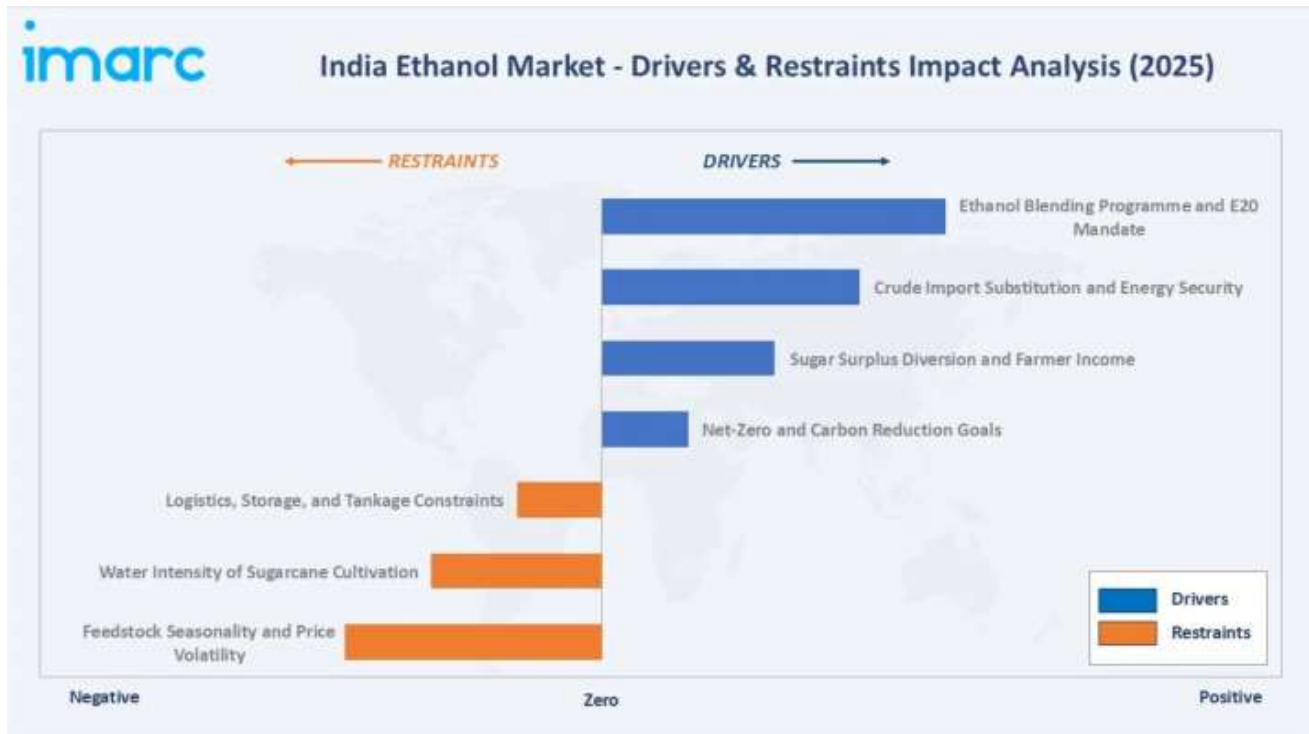
Market Overview

Ethanol in India is produced mainly from sugarcane molasses, surplus sugar, damaged food grains and maize, with a smaller synthetic route through ethylene hydration. Demand spans fuel blending, industrial chemicals, beverages, pharmaceuticals and personal-care formulations. The industry sits at the intersection of agricultural policy, energy security and climate strategy.



IMARC source diagram: India ethanol industry value chain.

Market Drivers



IMARC source chart: drivers and restraints impact analysis (2025).

- Ethanol Blending Programme and E20 mandate: blending reached 13.6% in 2024 from 5.0% in FY2020. The E20 target was advanced to 2025-26, with estimated annual ethanol requirement of 1,623 crore litres.
- Crude import substitution and energy security: the source reports FY2024 crude imports of 234.3 million tonnes costing about USD 132 billion, while ethanol blending saved an estimated USD 12.4 billion in foreign exchange between 2014 and 2024.
- Sugar surplus diversion and farmer income: ethanol-linked revenues support sugar-mill cash flows and improved cane-payment cycles.
- Net-zero and carbon reduction: ethanol blending is reported to have reduced CO2 emissions by 519 lakh tonnes between 2014 and 2024.

Market Restraints and Challenges

- Feedstock seasonality and price volatility: sugarcane crushing is seasonal, while adverse monsoons can constrain sugar and ethanol feedstock availability.
- Water intensity: sugarcane cultivation is cited at nearly 2,000 litres of water per kilogram of sugar produced, creating sustainability concerns in stressed regions.
- Logistics and storage: dedicated tankers, bonded warehouses and roughly 90 blending terminals create peak-period bottlenecks.
- Food-versus-fuel concerns: grain diversion can become contentious during periods of food-price inflation.
- Capital intensity: a 200 KLPD grain-based distillery is estimated to require INR 350-450 crore in capital.
- State-level excise and movement permits: differing rules across states complicate pan-India sourcing and procurement timing.

Market Opportunities

- 2G bio-ethanol from agricultural residue: Pradhan Mantri JI-VAN Yojana supports plants using rice straw, bagasse and other lignocellulosic residues. IOCL's Panipat 2G plant has 100 KLPD capacity.
- Flex-fuel vehicle commercialization: wider E85 and E100 adoption could materially expand ethanol demand beyond E20 levels.
- CBG and bio-refinery integration: co-locating compressed biogas and ethanol operations can share feedstock and improve plant economics.

Emerging Market Trends

Trend	Source Detail
E20 and Beyond	Full E20 availability targeted for 2025-26; discussion is extending toward E27 and E85 pathways for 2030.
Grain-Based Ethanol	Nearly 48% of national supply, up from under 12% in 2019, according to the source.
2G Commercialization	Public-sector plants are scaling rice-straw and lignocellulosic ethanol at 100-130 KLPD capacities.
Flex-Fuel Vehicles	Automakers showcased E85/E100 models; draft notifications target compliance for new ICE vehicles from 2027.
Water-Smart Cultivation	Maharashtra and Karnataka are piloting drip-irrigation incentives targeting 35%-40% water-use reduction.

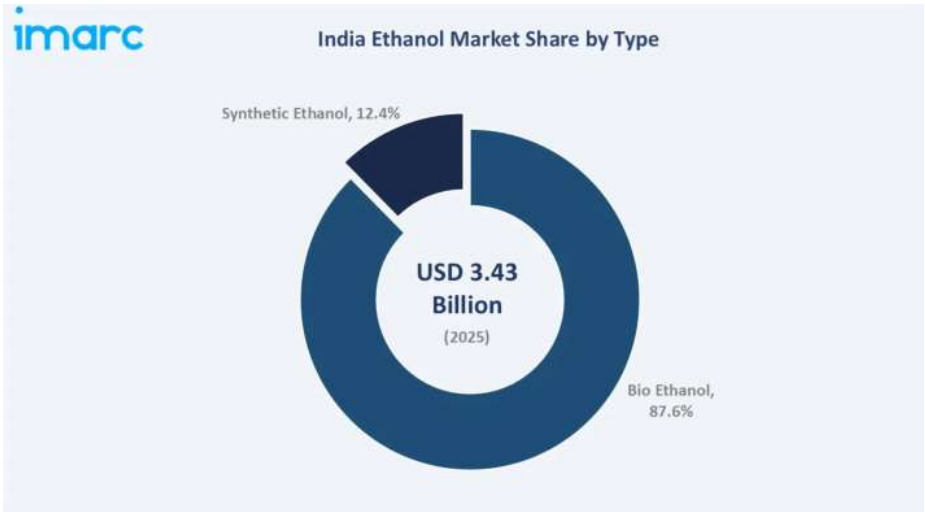
Technology Landscape

- Fermentation and distillation: continuous fermentation, multi-pressure distillation and molecular-sieve dehydration are standard for fuel-grade output; the source cites 99.8% purity at energy intensity below 2.0 kg steam per litre.
- 2G pathways: lignocellulosic ethanol from bagasse, rice straw and corn stover is moving from pilot to commercial scale.
- Digital process control: DCS, AI-driven yield optimization and IoT sensors are being adopted across newer distilleries; Praj's BluePrint platform is cited with 4%-6% energy savings and 2%-3% yield uplift.
- Carbon capture and integrated bio-refineries: fermentation CO2 capture, CBG and bagasse co-generation can improve plant economics.

Market Segmentation

By Type

Bio-ethanol led with 87.6% share in 2025 and is projected by the source to grow at about 14.9% CAGR through 2030. Synthetic ethanol retained 12.4%, supported by industrial uses requiring consistent quality and supply continuity.



IMARC source chart: India ethanol market share by type (2025).

By Purity

Denatured ethanol accounted for 81.3% of revenue in 2025, supported by fuel-blending procurement. Undenatured ethanol represented 18.7% and serves potable alcohol, beverages, pharmaceuticals and laboratory-grade chemicals. The source lists the 2024-25 B-heavy molasses ethanol price at INR 60.73 per litre.

Segment	Coverage
Type	Bio Ethanol; Synthetic Ethanol
Raw Material	Sugar and Molasses; Cassava; Rice; Algal Biomass; Ethylene; Lignocellulosic Biomass
Purity	Denatured; Undenatured
Application	Fuel and Fuel Additives; Beverages; Industrial Solvents; Personal Care; Disinfectants; Others
Region	North India; South India; East India; West India

Regional Market Insights

Region / Share			Key Growth Drivers
North	India	-	UP sugarcane belt, Punjab-Haryana grain corridor, Bihar maize feedstock, IOCL Panipat 2G plant
West India - 27.2%			Maharashtra sugar mills, Gujarat distilleries, Madhya Pradesh grain ethanol, OMC blending hubs
South	India	-	Karnataka sugar belt, Tamil Nadu integrated mills, Andhra Pradesh-Telangana grain ethanol projects
East India - 17.7%			Bihar grain ethanol cluster, West Bengal distilleries, emerging Odisha-Jharkhand capacity

Competitive Landscape

IMARC characterizes the market as moderately fragmented, with integrated sugar-ethanol producers competing alongside grain-based distilleries and technology providers. Competition centers on feedstock access, distillery capacity, OMC offtake contracts and technology adoption. The top five players are estimated to account for approximately 32%-38% of national ethanol revenue in 2025.

Company	Position / Core Strength
Praj Industries Ltd.	Leader - ethanol technology and engineering; 1G and 2G biofuel solutions
Shree Renuka Sugars Ltd.	Leader - integrated sugar and ethanol with refining and export linkages
Balrampur Chini Mills Ltd.	Leader - large sugar producer with significant ethanol capacity
Triveni Engineering & Industries Ltd.	Leader - diversified distillery operations and alcohol/ethanol portfolio
Pioneer Industries Pvt. Ltd.	Leader - large-scale grain-based distillery and ENA/ethanol production

Key Company Developments

- Praj Industries: the source describes more than 1,000 ethanol and bioenergy plants across 100+ countries, with strategic focus on 2G commercialization, ethanol-to-SAF, CBG integration and international expansion.
- Triveni Engineering: operates seven sugar mills and four distilleries with combined ethanol capacity of 800 KLPD; the source cites plans to scale capacity further.
- Balrampur Chini Mills: reported distillery capacity of 1,050 KLPD and a strategy increasingly oriented toward integrated bio-refinery products including ethanol and PLA bioplastics.

Investment and Growth Opportunities

- Bio-ethanol is identified as the highest-growth opportunity at approximately 14.9% CAGR through 2030, while denatured fuel-grade ethanol is cited at 14.7% CAGR.
- Grain-based and 2G pathways represent premium technology opportunities, with 2G commercial capacity targeted to exceed 12 plants by 2030.
- Bihar, Madhya Pradesh and Andhra Pradesh are highlighted for incremental growth; the source cites 25%-35% capital subsidies under state industrial policies for grain-distillery investments.
- Government-backed interest-subvention financing crossed INR 41,000 crore by 2024 across more than 400 distillery projects, according to the source.

Future Market Outlook (2026-2034)

IMARC projects the market to reach USD 11.78 billion by 2034 at a 13.95% CAGR. Bio-ethanol is expected to retain dominance, while synthetic ethanol continues to serve industrial-grade applications. The report identifies three structural shifts through 2034: nationwide E20 implementation followed by discussion of higher blends, commercialization of 2G bio-ethanol, and increasing flex-fuel vehicle adoption.

Research Methodology and Report Scope

The source states that primary research included interviews during 2024-2025 with sugar-ethanol mills, distillery EPC firms, OMC procurement teams and government officials. Secondary research used government publications, NITI Aayog ethanol roadmaps, ISMA data, FCI notifications, company filings and trade publications. Forecasting combined top-down and bottom-up methods with scenario analysis for monsoon variability, policy changes and feedstock-price volatility.

Indicator	Details
Base Year	2025
Historical Period	2020-2025
Forecast Period	2026-2034
Units	Billion USD
Scope	Type; Raw Material; Purity; Application; Region